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Self-presentation styles in self-reports: Linking the general factors of response styles, personality traits, and values in a longitudinal study ☆

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ABSTRACT

We investigated how response styles, personality traits, and values can be taken as manifestations of self-presentation styles in self-reports, and how self-presentation affects other self-report measures over time. Data on values and character traits at three time points across five years collected among a national representative sample in the Netherlands were utilized. A general response style factor consisting of extreme, socially desirable, and midpoint responding, a general factor of personality from the International Personality Inventory, and a general value factor from the Rokeach Value Survey were extracted, all of which showed scalar invariance across time. A latent self-presentation factor underlying the three general factors at each time point, and its stability and changes across time points was modeled. All three general factors loaded positively on the self-presentation factor. The latent mean of the self-presentation factor became smaller over time, yet effects of its impact on the relationships among various psychological variables remained small and stable over time. We conclude that survey respondents show a similar self-presentation style across domains and over time. Score corrections to deal with response styles are not recommended.

1. Introduction

Most social interactions, including attitude expression and change, can be analyzed through the lens of self-presentation (Baumeister, 1982). Self-presentation is the use of behavior as a means of communicating information about (or an image of) oneself to others. Depending on personal dispositions and specific contexts, people exhibit preferred self-presentation styles, such as being assertive or defensive, acquisitive or protective, and active or passive. Response styles, defined as respondents' systematic tendencies to respond to questionnaires on some basis other than the target constructs (Paulhus, 1991), can be considered an essential indicator of self-presentation styles in survey responses (e.g., Smith, 2004). We are interested in response styles that affect self-report Likert scales in different domains; more specifically, we set out to examine whether individuals show a similar self-presentation style across measures of personality (i.e., personal style) and values (i.e., normative function), and to what degree this style changes over time. The novelty of our study is that we use a variety of psychological measures to investigate self-presentation across psychological domains in a longitudinal study.

1.1. Response styles and their integration

The most studied response styles include acquiescent response style (ARS), extreme response style (ERS), midpoint response style (MRS), and socially desirable responding (SDR). Traditionally, these response styles are viewed as sources of common method bias that should be controlled for. Recent evidence, however, suggests that response styles may have a substantive meaning, as they are found to share trait variance with personality and values. For example, ERS was positively associated with extroversion, conscientiousness, and individualistic values, SDR with extroversion and conscientiousness, ARS with agreeableness and compliance, and MRS with modesty (e.g., Austin, Deary, & Egan, 2006; Chen, Lee, & Stevenson, 1995). To integrate these findings, He and van de Vijver (2013) confirmed that a general response style (GRS) can subsume these four response styles, with ERS and SDR as positive indicators and ARS and MRS as negative indicators. This integrated GRS was interpreted by the authors as a preferred communication style that represents the tendency of response amplification versus moderation.

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1.2. Response styles, personality, and values

Johnson (1981) suggested that response styles and the expressions of personality and values share some commonality, possibly all related to one's self-presentation styles. In line with this suggestion, the general factor of personality derived from the Big Five personality traits, interpreted as a basic personality disposition integrating the most general non-cognitive dimensions of personality (Musek, 2007), was found to be positively correlated with GRS (He & van de Vijver, 2013). Bye et al. (2011) reported that personal values, associated with ARS, were related to intended impression management. If a general factor of values were to be extracted (e.g., Podsakoff & Organ, 1986), we expect this factor to be indicative of individuals' self-presentation styles.

1.3. Stability and change in self-presentation styles

Little has been done on the stability and changes of self-presentation styles. Yet, the stability of response styles over time has been demonstrated. Weijters, Geuens, and Schillewaert (2010) used different item sets at two time points to measure response styles over a one-year period. They modeled time-invariant and time-specific response style factors, and found that response styles showed considerable stability. We expect temporal stability of self-presentation styles. Furthermore, in this study items common to all data collection points are used as indicators of response styles, and expressions of personality and values, thus both the stability and the changes of their integration over time could be tested.

1.4. The present study

The literature suggests that response styles and the expressions of personality and values may all be part of self-presentation styles. The stability and changes of self-presentation styles over time, in turn, may affect the associations among self-report measures. We used a general factor of response styles derived from socially desirable, extreme, and midpoint responding, a general factor of personality based on the Big Five personality traits, and a general factor of values based on six value dimensions across three time points (*T*1, *T*2, and *T*3), and we extracted a time-specific self-presentation factor from these three general factors at each time point to model its stability over time.

The effects of changes in the self-presentation factor over time could be demonstrated through comparing correlations of this factor with external psychological measures and intercorrelations among these external psychological measures with and without this factor corrected for at each time point. Well-established measures, such as self-esteem, life satisfaction, and positive and negative affect, were used as external measures. Researchers found that self-esteem, life satisfaction, and positive affect are positively related to each other, whereas negative affect shows a negative association with self-esteem and life satisfaction (Preisendörfer & Wolter, 2014; Robins, Fraley, Roberts, & Trzesniewski, 2001). If individuals indeed prefer a similar style across domains and time, we expect that the correction of the self-presentation factor would result in similar changes (or lack of changes) in correlations with external variables and intercorrelations among external variables over time.

2. Method

2.1. Sample and procedure

In this paper use is made of data of the LISS (Longitudinal Internet Studies for the Social Sciences) panel administered by CentERdata (Tilburg University, The Netherlands). The LISS panel is a representative sample of Dutch individuals who participate in monthly Internet surveys. The panel is based on a true probability sample of households drawn from the population register by Statistics Netherlands. Households that could not otherwise participate are provided with a computer and internet connection. A longitudinal survey is fielded in the panel every year, covering many domains.

We used five waves of data on value and character traits collected from 2008 to 2012, in which measures of the same constructs including affect, cognition, mood, personality, survey attitude, self-esteem, social desirability, trust, and values, in total 183 items, were administered. Each year, over 8000 selected household members were invited to participate, and the numbers of respondents ranged from 5321 to 6806 (response rates ranging from 69.9% to 79.6%). In 2010 and 2012, the complete questionnaire was only administered to non-respondents of the previous wave; therefore we used data in 2008 as *T*1, combined data in 2009 and 2010 as *T*2, and those in 2011 and 2012 as *T*3. The demographics of respondents in the consolidated three time points are presented in the upper panel of Table 1.

Respondents who participated at all three time points ($n = 3879$) were older ($M = 51.43$ years, SD = 15.71) than those who only took part in one or two time points ($M = 44.38$, SD = 18.36), $t(7569) = 17.91$, $p < .01$, Cohen's $d = .41$. The education level differed slightly, the majority (49.5%) of those who participated at all three time points had an intermediate or higher vocational education level compared with 41.7% of those who participated once or twice. The difference of gender distribution between the two groups was nonsignificant, $\chi^2(1, N = 7571) = .07$, $p = .80$.

Table 1
Demographics and scale properties at each time point.

	*T*1	*T*2	*T*3
Demographics			
N of participants	6766	6980	6734
Mean age (SD)	45.89 (15.95)	47.51 (17.30)	48.94 (17.54)
Level of education (percentage)			
Primary school	11	12	12
Intermediate secondary education	26	26	25
Higher secondary education	10	11	11
Intermediate vocational education	24	22	22
Higher vocational education	22	22	22
University	7	7	8
Percentage of males	46	46	46
Reliability of scales (Cronbach's α)			
Extreme response style	.81	.82	.82
Midpoint response style	.57	.63	.66
Socially desirable responding	.52	.52	.52
Agreeableness	.80	.80	.80
Conscientiousness	.77	.79	.78
Extroversion	.86	.86	.87
Emotion stability	.79	.79	.80
Openness	.77	.76	.77
Prosocial Concern	.90	.90	.90
Self-Directed Competence	.78	.79	.78
Restrictive Conformity	.81	.82	.81
Universal Maturity	.90	.90	.90
Stimulation/Comfort	.79	.80	.80
Self-Esteem	.89	.89	.90
Life Satisfaction	.88	.88	.89
Positive Affects	.87	.87	.87
Negative Affects	.92	.93	.93

2.2. Measures

2.2.1. Response styles

Response style indexes were derived from a wide variety of items. Three response styles were targeted: SDR, ERS, and MRS, because they were shown to be the defining indicators of GRS (He & van de Vijver, 2013). ARS was not included due to its ambiguous meaning due to the various operationalizations used in the past. When operationalized as the endorsement of agree proportions including the positive end (e.g., strongly agree), ARS is confounded with ERS; excluding the endorsement of the positive end results in an unclear meaning in ARS.

SDR. SDR was measured with a shortened version of the Marlowe–Crowne Social Desirability Scale (Crowne & Marlowe, 1960) with response options of 1 (*True*) and 0 (*False*). The reliabilities of this scale and of all the other measures at each time point are presented in the lower panel of Table 1. As can be seen there, values were adequate for all scales at each time point.

ERS. De Beuckelaer, Weijters, and Rutten (2010) recommended that at least 15 items of heterogeneous content should be used to derive valid and reliable response style indexes. Indexes of ERS and MRS were extracted from nonoverlapping items with 7-point Likert anchors from various measures in the questionnaire other than the Big Five personality and the Rokeach value items, in order to avoid data dependency between indexes and with the substantive measures of personality and values. Specifically, the same 15 items at the three time points were chosen to construct an ERS index. The average inter-item correlations ranged from .07 to .08, indicating sufficient heterogeneity in item content. The original responses were recoded as ERS endorsement (i.e., scores of 1 and 7 of the 7-point items as 1) and Non-ERS endorsement (i.e., scores of 2, 3, 4, 5, and 6 as 0), and the ERS endorsement from the 15 items was then averaged as an indicator of ERS.

MRS. A similar procedure was employed for an MRS index. Another 15 items were chosen from the item pool (average inter-item correlations ranging from .05 to .06), and recoded as MRS endorsement (i.e., scores of 4 of the 7-point responses as 1) and Non-MRS endorsement (i.e., scores other than 4 as 0). The average endorsement was taken as the index of MRS. The items used and the SPSS syntax to construct these indexes are available from the first author upon request.

A general response style factor (GRS), explaining 47% of all the variance, was extracted in a principal component analysis of the three response styles across all time points. As expected, ERS (.82) and SDR (.41) loaded positively and MRS (−.76) loaded negatively on the factor.

2.2.2. Personality

Fifty items of the International Personality Item Pool (Goldberg et al., 2006) were administered to assess the Big Five personality. Responses ranged from 1 (*very inaccurate*) to 5 (*very accurate*).

The general personality factor was extracted in a principal component analysis of the dimension, rather than item, scores of the five traits (*Agreeableness*, *Conscientiousness*, *Extroversion*, *Emotional Stability*, and *Openness*) across all time points (e.g., Musek, 2007). All five traits loaded positively on the factor (loadings ranging from .48 to .68), and it explained 38% of the variance.

2.2.3. Values

A rating-format version of the Rokeach value survey, including 18 instrumental values (i.e., preferred modes of behaviors) and 18 terminal values (i.e., desirable end-state of existence), was administered (Rokeach, 1973). The responses ranged from 1 (*extremely unimportant*) to 7 (*extremely important*). Following Feather (1991), we carried out a principal component analysis on the instrumental and terminal value items, respectively. Instead of using within-subject standardized scores, as proposed by Schwartz (1992) to account for response styles in value surveys, we used raw scores to analyze the expression of values. The 18 instrumental values loaded on three factors: *Prosocial Concern* (e.g., responsible, helpful), *Self-Directed Competence* (e.g., capable, independent), and *Restrictive Conformity* (e.g., hard-working, obedient), explaining 44%, 9%, and 6% of the variance, respectively. Two factors were extracted from the 18 terminal values: *Universal Maturity* (e.g., freedom, inner harmony) and *Stimulation/Comfort* (e.g., social recognition, an exciting life), explaining 41% and 12% of the variance, respectively.

Dimension, rather than item, scores of the five value dimensions across all time points were input into a principal component analysis to extract the general value factor. With all the value dimensions loading positively on the factor (loadings ranging from .77 to .85), it explained 66% of the variance.

2.2.4. External psychological measures

Self-esteem was measured by the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965), with responses ranging from 1 (*totally disagree*) to 7 (*totally agree*).

Life Satisfaction was measured by the 5-item Satisfaction with Life scale from Diener, Emmons, Larsen, and Griffin (1985). The responses ranged from 1 (*totally disagree*) to 7 (*totally agree*).

Positive and Negative Affects were measured with the 20-item PANAS Scale (Watson, Clark, & Tellegen, 1988) with responses ranging from 1 (*not at all*) to 7 (*extremely*).

3. Results

We describe the results in three parts. Firstly, we report the longitudinal measurement invariance of the three general factors (GRS, the general personality factor, and the general value factor), a prerequisite for valid longitudinal comparisons. Secondly, we report the modeling of the self-presentation factor from these general factors, and its stability and changes over time. Lastly, we describe effects of correcting for the self-presentation factor on the relationships among external psychological variables at each time point.

3.1. Longitudinal measurement invariance of the general factors

To demonstrate the measurement equivalence of GRS, the general personality factor, and the general value factor over time, confirmatory factor analyses were carried out in AMOS (Byrne, 2001). For GRS, we specified three time-specific GRS factors (so, one factor per time point), where ERS, MRS, and SDR at each time point were indicators; these time-specific GRS factors were correlated with each other, and uniqueness of each indicator was correlated across time points (e.g., ERS at *T*1, *T*2 and *T*3 were correlated) (configural invariance). We then added constraints to test invariance of measurement weights (i.e., factor loadings on GRS were equal across time points) and invariance of intercepts (i.e., indicators had the same intercepts across time points). The same model specifications were applied to the general personality factor and the general value factor. The model fit was evaluated by Chi-square tests, the Tucker–Lewis Index (acceptable above .90), the Comparative Fit Index (acceptable above .90), and the Root Mean Square Error of Approximation (acceptable below .06). The acceptance of a more restricted model was based on the change of CFI (less than .01) (Cheung & Rensvold, 2002).

Due to 31% missing values of all the items across all time points, we resorted to full information maximum likelihood estimation in confirmatory factor analyses (Schafer & Graham, 2002). For each general factor, invariance of measurement weights and intercepts

was well supported by the fit indexes (Table 2), although the chi-square values were rather high, which might be caused by the large sample size. We concluded that the longitudinal measurement invariance for the three general factors was confirmed, thus these factors could be compared across time points.

Table 2
Measurement invariance of the scales: Measurement weights and intercept invariance.

Scale	Invariance	χ^2 (*df*)	TLI	CFI	RMSEA
General response style[1]	Configural	222.89 (21)**	.97	.99	.03
	MW	248.51 (27)**	.98	.99	.03
	Intercepts	315.22 (33)**	.98	.98	.03
General personality factor	Configural	1587.43 (72)**	.96	.97	.05
	MW	1598.66 (80)**	.96	.97	.04
	Intercepts	1914.35 (90)**	.96	.97	.05
General value factor[2]	Configural	37.8.37 (69)**	.91	.95	.07
	MW	3734.89 (77)**	.92	.95	.07
	Intercepts	4076.98 (87)**	.92	.94	.07

TLI = Tucker–Lewis Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; MW = Measurement Weights.

[1] The variance of the error term for extreme response style was fixed to 0 to avoid negative variance.

[2] The error terms of prosocial concern and stimulation/comfort were negatively correlated.

** $p < .01$ (two tailed).

3.2. Stability and change in self-presentation style

We tested the model depicted in Fig. 1 with full information maximum likelihood estimation. We used the factor scores of GRS, the general personality factor, and the general value factor as observed variables. Each of the general factors of the preceding time points predicted that of the following time points, and a latent self-presentation factor was defined by the three general factors at each time point; their loadings were constrained to be equal across time (e.g., same loading of GRS on the self-presentation factor at the three time points). The model fitted well, $\chi^2(19, N = 9935) = 96.66$, $p < .01$, TLI = .99, CFI = 1.00, and RMSEA = .02. The standardized regression weights and the explained variance for each endogenous variable are presented in Fig. 1. All three observed general factors loaded positively on the self-presentation factor at each time point, indicating that participants had a similar style across personality and value domains, and that this self-presentation factor here represented amplifying versus moderating responses. The factor loadings of the general factors at *T*1 (.43–.63) were larger than these of *T*2 and *T*3 (.25–.40), which suggests a reduced impact of the self-presentation style across measurement occasions.

Due to model identification issues, the changes of the latent mean of the self-presentation factor over time could not be

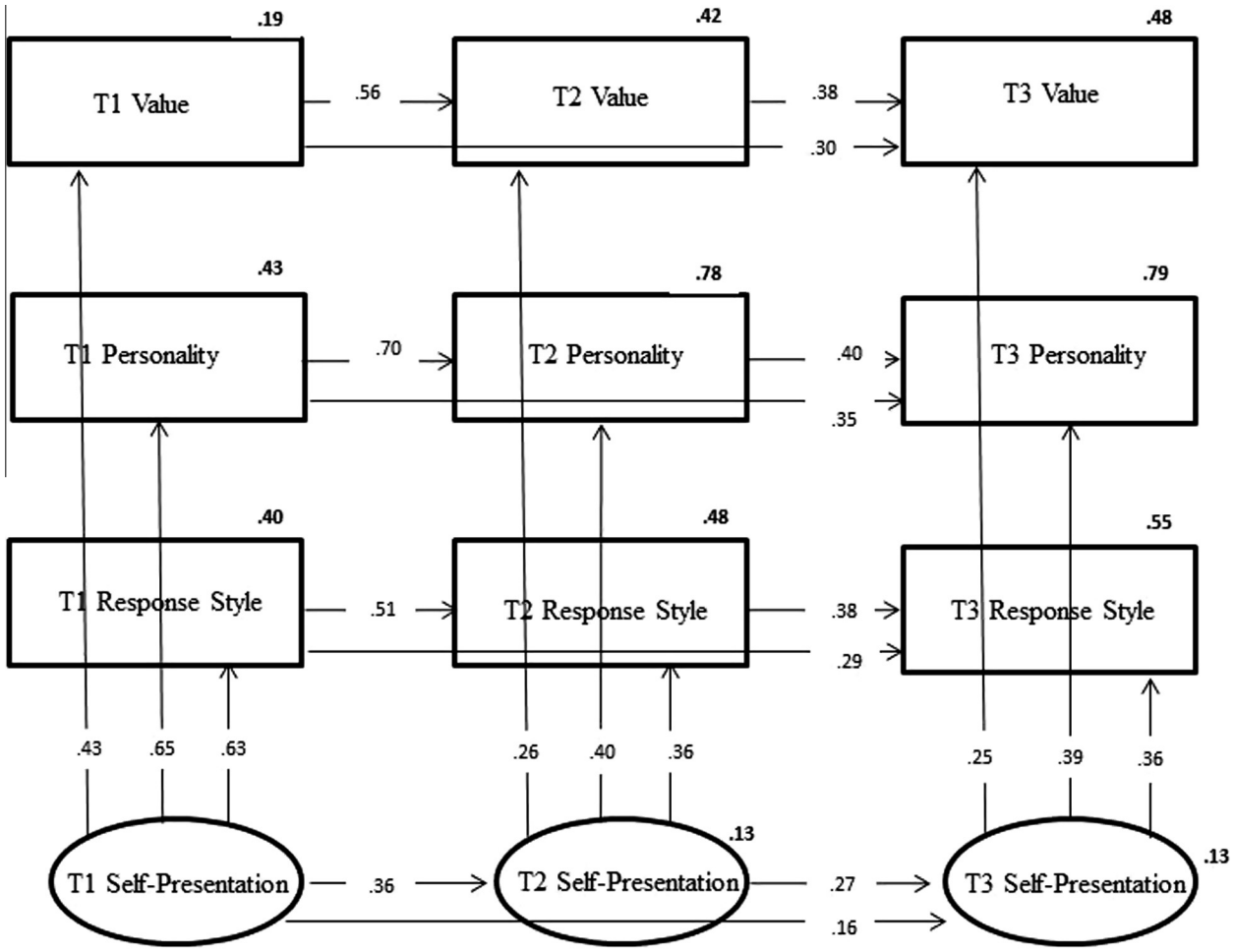

Fig. 1. Longitudinal model of the self-presentation style. *Note:* Standardized regression weights and factor loadings (all significant at $p < .01$) are presented next to the arrows. Numbers in bold represent proportions of variance explained.

Table 3
Correlations with the self-presentation factor and among external measures: Zero-order correlations (below diagonal) and with the self-presentation factor partialled out (above diagonal) at each time point.

	Self-presentation factor	1	2	3	4
T1					
1. Self-Esteem	.55	–	.32	.10	−.29
2. Life Satisfaction	.37	.45	–	.13	−.18
3. Positive Affect	.42	.31	.27	–	.26
4. Negative Affect	−.48	−.48	−.32	*.01*	–
T2					
1. Self-Esteem	.49	–	.41	.17	−.35
2. Life Satisfaction	.29	.49	–	.15	−.24
3. Positive Affect	.35	.30	.23	–	.20
4. Negative Affect	−.42	−.48	−.33	*.03*	–
T3					
1. Self-Esteem	.48	–	.40	.18	−.37
2. Life Satisfaction	.29	.48	–	.17	−.26
3. Positive Affect	.27	.29	.24	–	.19
4. Negative Affect	−.43	−.50	−.36	.04	–

All correlations are significant at $p < .01$, except the ones italicized.

estimated in the model shown in Fig. 1. We tested it instead in a longitudinal measurement invariance model, in which the three observed general factors loaded on the self-presentation factor at each time point. The measurement weights invariance model ($\chi^2(28, N = 9935) = 1572$, $p < .01$, TLI = .90, CFI = .94, RMSEA = .08) and intercept invariance model ($\chi^2(34, N = 9935) = 1{,}948$, $p < .01$, TLI = .90, CFI = .92, RMSEA = .08) were largely supported. The latent means of the self-presentation factor were compared in the measurement intercept model with the mean of *T*1 fixed to zero. The model showed an acceptable fit, $\chi^2(32, N = 9935) = 1{,}884$, $p < .01$, TLI = .90, CFI = .93, RMSEA = .08. All three indicators loaded positively on the latent factor (ranging from .22 to 1.00). Compared with *T*1, the self-presentation factor at *T*2 had a lower mean ($M = -.05$, SE = .01, $p < .01$), and that at *T*3 even lower ($M = -.10$, SE = .01, $p < .01$), pointing to the decrease of the self-presentation factor over time.

3.3. Correction for the self-presentation factor

Scores on self-esteem, life satisfaction, and positive and negative affects were correlated with the self-presentation factor (i.e., factor scores estimated in the model depicted in Fig. 1 in AMOS) and with each other before and after the self-presentation factor was partialled out at each time point (Table 3). Only respondents for whom data at all three points were available were included in the correlation analyses ($n = 3879$). The correlations of these external variables with the self-presentation factor were consistent across time points. Before correction, self-esteem and life satisfaction showed positive correlations with positive affect, and they had negative correlations with negative affect at all three time points. After partialling out the self-presentation factor, the patterning of all correlations remained the same but the values became slightly weaker. The average absolute correlation dropped from .30 to .21 at *T*1, from .31 to .25 at *T*2, and from .32 to .26 at *T*3. All in all, the correction for the self-presentation factor across time does not seem to strongly affect the associations among these external variables.

4. Discussion

We studied response styles, personality, and values from the perspective of an integrated self-presentation factor in a longitudinal study. We found that the general factors of response styles, personality, and values can be taken as indicators of a (global) self-presentation style. This self-presentation style and each general factor showed moderate to strong stability over time, suggesting that all of them may be part of a stable personal disposition. The loadings of the three general factors on the self-presentation factor and the latent mean of the self-presentation factor decreased over time. However, the impact of the self-presentation factor on changes in relationships among various psychological variables over time was very moderate.

We confirmed a stable self-presentation factor that is embedded in self-report data of various domains. In line with the interpretation of the GRS, which integrated specific response styles including ERS, SDR and MRS (He & van de Vijver, 2013), the self-presentation style represents amplifying (i.e., assertive and active) versus moderating responses (i.e., defensive and passive) to communicate one's image to others. As its indicators, the general factors of response styles, personality, and value load positively, suggesting that people tend to use the same style across different domains in survey responses, and more importantly that the self-presentation style shares variance with personality and values. Therefore, self-presentation style should not be merely interpreted as a domain specific nuisance factor in surveys.

We also found that the latent mean of the self-presentation factor decreased somewhat over time, suggesting that self-presentation becomes less salient over time. It is unlikely that the changes are caused by a similar decrease in values and personality over time; instead it suggests that the changes are due to scale usage. With repeated administrations of the same self-evaluative questions, the self-presentation style seems to become less salient, probably because the apprehension of performing an unfamiliar task (at *T*1) declines as the task becomes more familiar (at *T*2 and *T*3) (Ackerman, 1987), or responses over time are less influenced by cultural norms to present oneself in a culturally accepted way. The self-presentation factor affects all the psychological variables that we considered in the study; yet, the decrement of this factor does not strongly affect its correlations with external variables, nor the intercorrelations among these variables, which further suggests that self-presentation is not an independent nuisance factor but is integrated in the assessment of target constructs. Like the GRS, the first factors emerged from personality and value measures seem to reflect respondents' scale usage. There has been much debate on the nature of the general personality factor, and our study confirms findings by He and van de Vijver (2013) that it is part of a self-presentation style and it is not merely an artifact.

We do not concur with the suggestion to control for the effects of self-presentation in survey responses. The loadings of the response styles indicate strongly the presence of individual differences in a style of responding, which can be influenced by personal preference as well as inculcated cultural values, notably conformity (He, van de Vijver, Domínguez, & Mui, 2014). Such a response style is part and parcel of one's psychological makeup and cannot be easily teased out. Therefore, statistical removal of response styles (part of self-presentation style) is unlikely to increase the validity of scores. Moreover, the stability of the self-presentation style construct over time (though combined with a mean change) and the stability of its impact on various psychosocial measures over time also speak against the effectiveness of applying a temporal separation of measurements (i.e., introduce a time lag between the measurements of target variables) as a means to control for response styles (Weijters et al., 2010).

In conclusion, our study demonstrated the pervasiveness of self-presentation in response styles and self-report personality and values, and its stable, yet weak effect on the associations of self-reports. In spite of a few limitations in our study such as the inevitable information loss due to attrition in longitudinal data and the omission of acquiescence, our findings inform researchers about a general self-presentation style affecting all kinds of

self-reports possibly due to social norms, and the caution needed for any score correction in self-reports.

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